



Republic of the Philippines  
**BANGSAMORO AUTONOMOUS REGION IN MUSLIM MINDANAO**  
**OFFICE OF THE CHIEF MINISTER**  
**SPECIAL BIDS AND AWARDS COMMITTEE**  
**MARAWI REHABILITATION PROGRAM**

Bangsamoro Government Center, Governor Gutierrez Avenue, Rosary Heights VII,  
Cotabato City 9600

**IN RE: COMPETITIVE PUBLIC BIDDING FOR  
THE CONSTRUCTION OF HYBRID SOLAR  
POWERED LEVEL II WATER SYSTEM AT  
NORSALAM VILLAGE PERMANENT  
SHELTER, PATANI, MARAWI CITY**

**ABC: PHP 4,455,551.59**

**IB NO.: MRP-112024-003**

**SUPPLEMENTAL BID BULLETIN NO. MRP-2024-11-003**

November 20, 2024/ Jumada I 18, 1446 AH

Please be advised of the following clarifications and Modifications on the Bidding Documents:

SUBJECT	ORIGINAL			AMENDED		
1. List of Contractor's Key Personnel	<b>Key Personnel</b>	<b>General Experience</b>	<b>Minimum Relevant Experience</b>	<b>Key Personnel</b>	<b>General Experience</b>	<b>Minimum Relevant Experience</b>
	1 Project Engineer	Construction	5 years	1 Project Engineer	Construction	5 years
	1 Safety Officer	Construction Safety and Health	3 years	1 Safety Officer	Construction Safety and Health	3 years
	1 Materials Engineer	Quality Assurance	3 years	1 Materials Engineer	Quality Assurance	3 years
	1 Construction Foreman	Supervision	5 years	1 Construction Foreman	Supervision	5 years
	1 Health Personnel	Basic Healthcare in Construction	1 year	1 Health Personnel	Basic Healthcare in Construction	1 year
	1 Electrical Engineer	Electrical Installation	2 years	1 Electrical Engineer	Electrical Installation	2 years
				<b><u>7 Skilled Laborer (Welder, Mason,</u></b>	<b><u>Construction</u></b>	<b><u>1 year</u></b>

			<b><u>Carpentry, Painter, Tile Setter, Electrician, Plumber</u></b>																																																																																			
2. List of Contractors Major Equipment Units	<table border="1"> <thead> <tr> <th>Equipment</th> <th>Minimum Specifications</th> <th>Minimum Number of Units</th> </tr> </thead> <tbody> <tr> <td>Dump Truck</td> <td>12 cu. yd.</td> <td>2</td> </tr> <tr> <td>One Bagger Mixer</td> <td>4-6 cu.ft./min</td> <td>1</td> </tr> <tr> <td>Bar Cutter</td> <td>25 mm max., single phase</td> <td>1</td> </tr> <tr> <td>Bar Bender</td> <td>25 mm max., three (3) phase</td> <td>1</td> </tr> <tr> <td>Welding Machine</td> <td>500 amp</td> <td>2</td> </tr> <tr> <td>Boom Truck</td> <td>2-5 mt</td> <td>1</td> </tr> <tr> <td>Cargo Truck/Delivery Truck</td> <td>9-10 mt</td> <td>1</td> </tr> <tr> <td>Backhoe</td> <td>0.80 m3</td> <td>1</td> </tr> <tr> <td>Plate compactor</td> <td>5 hp</td> <td>1</td> </tr> <tr> <td>Concrete Vibrator</td> <td>-</td> <td>2</td> </tr> <tr> <td>Pumpcrete</td> <td>-</td> <td>1</td> </tr> <tr> <td>Cutting Outfit</td> <td>-</td> <td>1</td> </tr> <tr> <td>Water Well Drilling Machine</td> <td>-</td> <td>1</td> </tr> </tbody> </table>	Equipment	Minimum Specifications	Minimum Number of Units	Dump Truck	12 cu. yd.	2	One Bagger Mixer	4-6 cu.ft./min	1	Bar Cutter	25 mm max., single phase	1	Bar Bender	25 mm max., three (3) phase	1	Welding Machine	500 amp	2	Boom Truck	2-5 mt	1	Cargo Truck/Delivery Truck	9-10 mt	1	Backhoe	0.80 m3	1	Plate compactor	5 hp	1	Concrete Vibrator	-	2	Pumpcrete	-	1	Cutting Outfit	-	1	Water Well Drilling Machine	-	1	<table border="1"> <thead> <tr> <th>Equipment</th> <th>Minimum Specifications</th> <th>Minimum Number of Units</th> </tr> </thead> <tbody> <tr> <td>Dump Truck</td> <td>12 cu. yd.</td> <td><b>1</b></td> </tr> <tr> <td>One Bagger Mixer</td> <td>4-6 cu.ft./min</td> <td>1</td> </tr> <tr> <td>Bar Cutter</td> <td>25 mm max., single phase</td> <td>1</td> </tr> <tr> <td>Bar Bender</td> <td>25 mm max., three (3) phase</td> <td>1</td> </tr> <tr> <td>Welding Machine</td> <td>500 amp</td> <td>2</td> </tr> <tr> <td>Boom Truck</td> <td>2-5 mt</td> <td>1</td> </tr> <tr> <td>Cargo Truck/Delivery Truck</td> <td>9-10 mt</td> <td>1</td> </tr> <tr> <td>Backhoe</td> <td>0.80 m3</td> <td>1</td> </tr> <tr> <td>Plate compactor</td> <td>5 hp</td> <td>1</td> </tr> <tr> <td>Concrete Vibrator</td> <td>-</td> <td>1</td> </tr> <tr> <td>Pumpcrete</td> <td>-</td> <td>1</td> </tr> <tr> <td>Cutting Outfit</td> <td>-</td> <td>1</td> </tr> <tr> <td>Water Well Drilling Machine</td> <td>-</td> <td>1</td> </tr> </tbody> </table>	Equipment	Minimum Specifications	Minimum Number of Units	Dump Truck	12 cu. yd.	<b>1</b>	One Bagger Mixer	4-6 cu.ft./min	1	Bar Cutter	25 mm max., single phase	1	Bar Bender	25 mm max., three (3) phase	1	Welding Machine	500 amp	2	Boom Truck	2-5 mt	1	Cargo Truck/Delivery Truck	9-10 mt	1	Backhoe	0.80 m3	1	Plate compactor	5 hp	1	Concrete Vibrator	-	1	Pumpcrete	-	1	Cutting Outfit	-	1	Water Well Drilling Machine	-	1
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4. Section VIII. Bill of Quantities	<b><u>See Annex C</u></b>																																																																																					

This Supplemental/Bid Bulletin is issued to modify or amend the corresponding items in the Bidding Documents.

For guidance and information of all concerned.

*Signed*  
**NARCISA D. MACOG**  
Chairperson, Special Bids and Awards Committee

## **Annex “A”**

### **Section VI. Specifications**

#### **INTRODUCTION**

The Drawings and Specifications are complementary to each other. Drawings are graphic means of showing work to be done. They are particularly suited to showing where materials are located. Thus, drawings exist essentially to show dimension, location and placement. Not all works, however, can be presented in the drawings. Generalized works are usually statement form and hence, the contractor is required to read the specifications carefully.

Specifications, on the other hand, are used to describe the materials, construction techniques, samples, shop drawings, guarantees and other contract requirements. Together, the drawings and the specifications are used to inform the contractor. In cases where the specified brand carries with it the manufacturer’s specifications, the manufacturer’s specifications shall hold precedence over these specifications.

The Specifications are of the abbreviated type and include incomplete sentences. The selection of the sentence depends on the underlying principles of Specifications:

1. That the Technical Specifications are only one part of the Contract Documents.
2. That the Contract is between the Procuring Entity and the General Contractor and
3. That the General Contractor is the only party responsible for completing the work in accordance with the Contract Documents.

Therefore:

1. Only the General Contractor is referred to in the Specifications so as not to violate the intent of the contract and so as not to undermine the proper chain of command.
2. Any reference to Specialty Trade Contractors in the technical Specifications is made only in so far as selection of Specialty Trade Contractors is made through bidding. Once the Specialty Trade Contractors are selected and assigned to the General Contractor, the General Contractor assumes all the responsibilities for the execution of the whole project in accordance with the Contract Documents. Therefore, in the contract between the Owner and the General Contractor, the Specialty Trade Contractor is not referred to. In all contract Documents, the word “Contractor” means the General Contractor.
4. The omission of the phrase “The Contractor shall” is intentional because the whole Specifications is directed to the Contractor. Omitted words or phrases shall be supplied by inference in the same manner as they are when a “note” occurs on the drawings.
5. Where “as shown”, “as indicated”, “as detailed” or words of similar import are used, it shall be understood that reference to the drawings accompanying the Specifications is made unless otherwise stated.
6. Where “as directed“, “as required”, “as permitted”, “as authorized”, “as approved, accepted” or words of similar import as used, it shall be understood that the direction,

requirements, permission, authorization, approval or acceptance of the Architect is intended unless otherwise stated.

7. As used herein, “provided” shall be understood to mean “provided complete in place,” that is, “furnished and installed”.
8. Most sentences are in the imperative mood. This style is especially suited for instructions covering the installation of products and equipment.

## **CLARIFICATIONS**

All reference to any brand, material, equipment, or systems in the Specifications, plans, and bid documents is indicative of the type and quality of what is required. However, any equal material, equipment, or system can be used.

The list of items of work provided in the scope of works does not in any way limit the responsibility of the Contractor to perform all other works necessary for the completion of the

### **A. GENERAL CONDITIONS DESCRIPTION OF THE PROJECT**

Complete all works for the Construction of Hybrid Solar Powered Level II Water System at Norsalam Village Permanent Shelter, Patani, Marawi City, including the supply of all materials, equipment, and systems, as well as the performance of all necessary labor and processes, in accordance with the plans, specifications, the Bidding Documents, the Terms of References, and other related contract documents.

The contractor is not limited to the scope of works listed. They should verify all plans and actual conditions for the necessity of work. If the actual situation calls for demolition, removal, and relocation he shall include such and all concomitant works to finish as part of the scope of work.

Any discrepancies found between the drawings and specifications and the site conditions or any errors or omissions in the drawings or specifications should be clarified with the Engineer from the Procuring entity.

Should the contractor fail to verify or clarify discrepancies, errors, conflicts or omissions in the drawings and specifications, it shall be deemed that the contractor has included in the preparation of his bid the necessary works, materials, or items needed to satisfy the general scope of works.

### **B. SCOPE OF WORKS:**

Enumerated below are some of the works expected from the contractor. Therefore, the scope is not limited to what has only been written below, some works are implied and expected. The objective of the project must be met by the implementing contractor before the project may be turned over to the OCM-BARMM.

#### **1. Permits and Clearances**

- a. Secure and pay all permits (application and obtaining of Building Permit and all

other implied permits needed, Fire Clearance, and Certificate of Occupancy), fees, licenses, taxes, tests, etc. necessary for the execution of the general construction works.

- b. Prepare a monthly progress report which shall include an overall progress chart based on actual physical accomplishment of construction work and a progress chart based on actual value of accomplished construction work, among others.
- c. Miscellaneous Fees (Notary, Blueprint, processing requirements, and other fees)

## **2. Mobilization and Temporary Facilities**

- a. Mobilization of all necessary personnel, labor, tools, facilities, and equipment to commence work on the project.
- b. Setting up of Temporary Facilities within the site.
- c. Preparation of logistics of contractor's equipment.
- d. Setting up of necessary water and power lines required for the Project.
- e. Provision of security and safety measures for the protection of the general public during construction work.
- f. Setting up any safety measure equipment or temporary structures such as bunk houses, tarps, signs, etc.

## **3. Earthworks**

- a. *Site Clearing.* Debris, shrubs, and other unsuitable materials shall be removed.
- b. *Cut and Fill.* Cut and fill shall be done to elevations where required.
- c. *Stakeout.* All lines and grades as shown on the plans be established before the excavation is started. Basic batter boards and reference works shall be placed at such place where they will not be disturbed during foundation works.
- d. *Excavation.* Excavation for foundations shall be made to grades as indicated on plans. Excavations shall be made deeper until the general or desired stratum for the safe bearing capacity of soil is reached.
- e. *Backfill.* Works include backfilling and compaction of excavated materials.
- f. *Gravel fill.* Works include filling of 50mm thick layer of gravel at column footings and footing tie beams prior to concrete pouring.
- g. *Pest Control/ Soil Poisoning.* Work includes furnishing and applying termite control chemicals, including the use of equipment and tools in performing such operations in accordance with the Specification.

## **4. Concrete Works**

- a. *Concreting*. Works include concreting of PCC pavement as specified in the plans and Specifications.
- b. *Reinforcing Steel Bars (RSB)*. Works include the provision of reinforcing bars for concrete road specified in the plans and Specifications, all sizes of reinforcing bars shall be as specified in the plans.
- c. *Formworks*. Works include the provision of formworks for all concrete works.

#### **5. Drainage and Slope Protection Structures**

Works include laying pipe culverts, stone masonry, and rock embankments as specified in the plans.

#### **6. Construction, Installation, and Provision of Miscellaneous Structures**

Works include installing danger/warning signs, pavement markings, furnishing and transplanting of trees, and supply, delivery, and installation of solar LED streetlights.

#### **7. Demobilization**

- a. Demobilize, dismantle, and remove all temporary facilities, including all workmen's houses, construction equipment, tools, personnel, and debris out of the project site and premise
- b. Cleaning of the building and site to a spic and span state, ready for use.
- c. Restoration of all possible damaged facilities during the renovation phase.

### **C. OTHERS**

- The Contractor must have a Project Engineer who will supervise the project onsite. The Contractor shall inform MRP-PMO in case of replacement/changes of personnel assigned at the project site. The replacement must have relevant qualifications and abilities equal to or better than those of the personnel as evidenced by his/her training certification to be submitted to MRP-PMO.
- Demolitions and repairs due to the Contractor's fault shall be done by the Contractor without extra compensation to the Owner.
- As soon as the project is satisfactorily inspected and it conforms to the plans and specifications, the contractor shall submit to the procuring entity a written notice that said project is completed and is subject to the latter's approval.
- Five copies of As-Built Plan must be submitted not later than 7 days after project completion.

### **D. SPECIFICATIONS**

All drawings, small scale, and detail drawings are intended to collaborate with the specifications and to form part thereof, where figures are given, they are to be followed in preference to measurement by scale. Anything shown in the drawings and not mentioned in the specifications or vice-versa or anything not expressly outlined in

either, but which is reasonably implied shall be furnished and installed as though specifically shown in mentioned both.

## **Annex “B”**

### **Section VI. Specifications**

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## **F. SCOPE OF WORKS:**

Enumerated below are some of the works expected from the contractor. Therefore, the scope is not limited to what has only been written below, some works are implied and expected. The objective of the project must be met by the implementing contractor before the project may be turned over to the OCM-BARMM.

### **1. Provision of field office for the Engineer( Rental basis).**

The contractor shall provide a field office for the Engineer as reflected on the Program of Works and the Bill of Quantities, in order to provide a centralized hub for project

coordination, ensure effective communication and collaboration, offer a secure and organized workspace, facilitate real-time monitoring supervision and enhance client and stakeholder engagement.

## **2. Bunk House, Storage, Workmen Accomodation for Contractor**

The contractor shall provide temporary facilities at the site which includes, **Bunk House** that will shelter the workers ensuring their comfort and well-being, **Storage** that will securely store the construction materials and equipment and **Workmen Accomodation** that will provide amenities for workers' comfort and hygiene.

## **3. Permits and Clearances**

The contractor shall be responsible of preparing and providing any documents required in securing any necessary permits and clearances from a relevant authority before and during the project implementation.

## **4. Installation of Project Billboard at Project Site**

The contractor shall provide a Project billboard as shown in the Detailed Engineering Designs. This aims to enhance transparency and accountability, encourages community involvement, facilitates smooth project execution and demonstrates government commitment to public information and participation.

## **5. Construction Health and Safety Program**

To ensure a safe working environment for employees, subcontractors and visitors, the contractor shall observe a Construction Health and Safety Measures which includes but not limited to: deploying safety officer and a health personnel's that is constantly present at the site, provision of Personal Protective Equipment to construction work personnel's and provisions of suitable signages and barricades for a certain construction works.

## **6. Mobilization/Demobilization**

The contractor shall prepare a logistics of contractor's equipment, setup of Temporary Facilities within the site, set up of necessary water and power lines required for the project set up of any safety measure equipment or temporary structures (such as tarps, signs, etc.), coordinate with stakeholders thru notifying neighbors, authorities and other interested parties, deploy materials and manpower on-site and conduct safety orientations by inducting workers on site safety procedures.

The contractor shall disassemble and transport equipment off-site, relocate or release staff and subcontractors, restore the site to its original condition, dismantle site facilities and amenities, manage waste and surplus materials, complete punch list and document site conditions, transfer ownership and responsibility and document best practices and areas for improvement.

## **7. Earthworks**

Earthworks shall includes but not limited to the following:

### **a. Clearing and grabbing**

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowing as required,

### **b. Gravel bedding**

Gravel bed shall be laid prior to the placement of the concrete column footing (reservoir and pump house), slab on floor (pump house) and other structure's parts that needs the laying of gravel bed as specified in the plan.

**c. Structural Excavation**

Structural excavation includes but not limited to excavation of structural tie beam, structural footing for column.

**d. Embankment from a common borrow by equipment**

Embankment from a common borrow by equipment shall include but not limited to structural footing for column, tie beam and floor on slab or as specified in the plan.

**8. Concrete Works**

Concreting works shall include but not limited to: Structural footing for column, column, tie beam, roof beam, slab on floor, and other concreting works indicated in the plan.

**9. Reinforcing Steelworks for Reinforced Concrete**

Reinforcing steelworks shall include but not limited to: fabrication of steel reinforcement for column footing, column, tie beam, roof beam, slab on floor, reinforced concrete wall, slab and other reinforcing steelworks specified in the plan.

**10. Form works and False works**

Form works and false works shall include but not limited to: fabrication of form works for column, roof beam, slab, reinforced concrete wall and other construction activities that requires form works as specified in plan.

**11. Plumbing and Sanitary works**

Works shall include but not limited to: installation of downspout pipes, fitting and other plumbing works necessary to complete the works and as indicated in the plan.

Installation of all transmission pipes, distribution pipes and other fittings that necessitate to complete the works. A minimum of 100mm thick sand bed shall be laid prior to the installation of pipes.

**12. Masonry Works**

Masonry works includes the Piling of CHB as indicated in plan

**13. Plastering**

The contractor shall plaster both side of all piled CHB.

**14. Structural Steel Works**

Works shall includes the fabrication and installation of steel trusses, steel purlins and other steel works as specified in the plan.

**15. Roofing Works**

Works shall includes the installation of pre-painted metal sheet, gutters and fascia board.

**16. Painting Works**

For Masonry painting, works shall include the preparation of the area to be painted, application of skim coat, first coat for primer and final coat for the final color. Both side

of all walls and other parts of the structure shall be painted. For the final color, the contractor shall submit to end user an approval form for the determination of final color. For metal painting, works shall include the application of anti-rust coat with red as final color for steel truss, steel purlins and other exposed metals.

#### **17. Ceiling Works**

Works shall include the framing, installation of hardiflex and finishing.

#### **18. Signage and logo**

Works shall include the signage and logo as indicated in the plan.

#### **19. Solar Power Energy Hybrid**

Works shall include but not limited to the installation, testing and commissioning of 6.5 kW Package Hybrid type Solar Energy, with Panel Board, batteries and Inverter and all required supports and accessories.in accordance to electrical plans, specification and standard.

#### **20. Electrical Works**

Work shall include but not limited to the installation of conduits, junction boxes, receptacles, panel board, lighting fixtures, outlets and wiring in accordance to the plan, specifications and standard.

All electrical works must undergo inspection, testing and commissioning.

#### **21. Water Pump Installation**

Works shall include but not limited to installation of water pump and accessories in accordance with plans, technical specifications and standard.

### **G. OTHERS**

- The Contractor must have a Project Engineer who will supervise the project onsite. The Contractor shall inform MRP-PMO in case of replacement/changes of personnel assigned at the project site. The replacement must have relevant qualifications and abilities equal to or better than those of the personnel as evidenced by his/her training certification to be submitted to MRP-PMO.
- Demolitions and repairs due to the Contractor's fault shall be done by the Contractor without extra compensation to the Owner.
- Prepare a monthly progress report which shall include an overall progress chart based on actual physical accomplishment of construction work and a progress chart based on actual value of accomplished construction work, among others.
- As soon as the project is satisfactorily inspected and it conforms to the plans and specifications, the contractor shall submit to the procuring entity a written notice that said project is completed and is subject to the latter's approval.
- Five copies of As-Built Plan must be submitted not later than 7 days after project completion.

### **H. SPECIFICATIONS**

All drawings, small scale, and detail drawings are intended to collaborate with the specifications and to form part thereof, where figures are given, they are to be followed in preference to measurement by scale. Anything shown in the drawings and not mentioned in the specifications or vice-versa or anything not expressly outlined in either, but which is reasonably implied shall be furnished and installed as thought specifically shown in mentioned both.

### **1. STAKING OUT THE BUILDING LINE**

The building line for the proposed **water system that includes reservoir and pump house** shall be staked out and all lines and grades shown on the plan shall be established before any excavations start. Batter boards and reference marks shall be erected at such places where they will not be disturbed during the excavation works.

### **2. EXCAVATION**

All excavations shall be made to grade indicated on the drawings. Where the building site is covered with any kind of fill, the excavation for footings should be made deeper until the stratum for safe bearing capacity of soil is reached.

Whenever water is encountered during the excavation process, it shall be removed by bailing or pumping, care being taken that the surrounding soil particles are not disturbed or removed.

### **3. BACKFILLS**

After concrete for foundation is hard enough to withstand pressure resulting from fills, the materials removed from excavation can be used for backfill around them.

Backfills and fills shall be placed in layers not exceeding 150mm in thickness, and each layer shall be thoroughly compacted by wetting, tamping or rolling.

### **4. CONCRETE WORKS**

All concrete shall be mixed thoroughly until there is a uniform distribution of the cement and aggregates, and should be deposited as nearly as possible to its final position, care being taken to avoid segregation of the aggregates.

Water to be used for mixing concrete shall be clean and free from injurious amount of oil, acids, alkalis, salts and other organic materials.

### **5. PROPORTIONING OF CONCRETE**

All concrete works shall be done in accordance with the standard specification for plain and reinforced concrete as adopted by the government. Cement to be used shall be **Portland or Pozzolan** cements whichever is more readily available in the locality.

The following proportions of concrete mixtures shall be used for the various parts of the building:

**Column, Concrete Wall and Footings** class A (1:2:4)

**Reinforced Concrete Beams and Slabs** class A (1:2:4)

**Concrete Floor Slab on Fill** class A (1:2:4)

**Class A** concrete shall be a mixture of 1 part of cement, 2 parts of fine aggregates and 4 parts of coarse aggregates by volume, plus enough clean water to make mixture into a pliable paste.

**Class B** concrete shall be a mixture of 1 part of cement, 2-1/2 part of fine aggregates, 5 parts of coarse aggregates by volume, plus enough clean water to make the mixture into a pliable paste.

**Class C** concrete shall be a mixture of 1 part of cement, 3 parts of fine aggregates, 6 parts of coarse aggregates by volume, plus enough clean water to make the mixture into a pliable paste.

The fine aggregates for concrete shall consist of natural sand or of inert materials with similar characteristics having clean, hard and durable grains, free from organic matter or loam.

The coarse aggregates shall consist of gravel, crushed gravel or rocks, or a combination of gravel and rocks, and shall consist of hard, tough, durable, clean and uncoated particles. The sizes of coarse aggregates to be used in the various part of the work shall be 3/4" or as required.

The mixture of cement plaster for concrete hollow block walls shall be 1 part of cement and 3 parts of sand.

## **5. STEEL REINFORCEMENTS**

All steel reinforcement bars to be used in this construction shall consist of round **deformed bars** with lugs or projections on their sides to provide a greater bonding between concrete and the steel.

All steel reinforcing bars shall be accurately placed and secured against displacement by tying them together at each bar intersection with gauge **no. 16 G.I. tie wire**.

The steel reinforcement bars indicated on footings, column, beams and other concrete members should all conform to the number, size, and spacing as indicated on the drawings or schedule of steel reinforcements.

No metal reinforcements shall be installed in place unless it is free from rust, scales or other coating, which will destroy or reduce the bond with concrete.

## **6. FORMS FOR CONCRETE WORKS**

All forms for concrete works shall be properly braced or tied together so as to maintain the correct position and shapes of the concrete members. Forms shall be constructed sufficiently tight to prevent bulging and seepage of water.

Forms shall not be removed until the concrete has attained sufficient strength to support its own weight and any loads that may be placed on it. Side forms of beams and girders may be removed earlier than the bottom forms but additional posts or shoring must be placed under the beam or girder until they have attained their strength.

Forms are pre-fabricated and provided to assemble in site.

## **7. CONCRETE SLAB ON FILL**

Concrete slab on-fill shall be poured on gravel bed of not less than **100mm thick** and properly compacted or as indicated in the plan.

## **8. FLOOR FINISHES**

Slab on floor .....Plain Cement smooth finished

## **9. WALL FINISHES**

Interior Walls..... Cement Plaster Smooth Finished, skim coat Finished, Painted  
Exterior Walls.....Cement Plastered Smooth Finished, Skim coat finished, Painted

## **10. CEILING**

All interior and exterior ceiling shall be **3.5mm HARDIEFLEX** ceiling boards on **METAL FURRING** ceiling frame spaced at **0.60m O.C** both ways. Provide necessary air vents at eaves ceiling properly screened with insect screen.

## **11. LUMBER AND WOOD WORKS**

All lumber to be used in this project shall be well seasoned thoroughly dry and free from loose or unsound knots, shakes or other imperfections impairing their strength, quality and appearance.

## **12. DOORS AND WINDOWS**

All doors and windows shall conform to the **SCHEDULE OF DOORS AND WINDOWS** found in the plan, any changes of the design and the kind of materials to be used shall be approved by the End User and the **Architect**.

## **13. STEEL ROOF FRAMING**

All steel materials used in the construction shall be in accordance with **AISC** Specification for Design, Fabrication and Erection of structural steel for buildings.

**A. Steel Trusses and Rafters: Refer to the plan**

**B. Purlins Use: Refer to the plan**

**C. Fascia Framing: Refer to the plan.**

**D. Sag Rod: Use: 8mm dia. Deformed bars**

All steel work after complete fabrication and erection shall be Painted with **2-Coats Epoxy Red Oxide Primer paint.**

## **14. ROOFING**

The roof shall be covered with 0.4mm thick pre-painted metal tile roofing sheet and shall be secured to the **2" x 3" C-Purlins** with **2" Metal Tek screw.**

Ridge roll, hip rolls and valleys to be used shall be those compatible with the pre-painted metal tile roofing sheets. They shall lap the roofing sheets at least **250mm**. The ridge roll, hip rolls and valleys shall be riveted to the roofing sheets in addition to the tek screw and rivets engaging **G.I. Straps** in securing the roofing sheets to the purlins.

All roofing sheets adjacent to concrete hollow blocks and masonry walls such as at property line firewalls, shall be provided with gauge # **26 G.I. Flashing** to extend up to the top and over to the other side of the wall. All rivets shall be placed at the top of the corrugation of the roofing sheets to prevent leaks.

## **15. ELECTRICAL WORKS**

The electrical installation shall be done in accordance with the approved plans and under the direct supervision and control of a duly licensed **Professional Electrical Engineer or Master Electrician.**

All electrical works and materials shall conform to the provision of the latest edition of the Philippine Electrical Code.

The electrical wiring shall be installed thru **MOLDFLEX** coil cable PVC electrical conduit, fittings and appurtenances.

Electrical wires for light and power shall not be less than **3.5mm<sup>2</sup> (No. 12).**

Automatic Circuit Breakers shall rated 220 V, 2 Pole, 60 Hz.

All spare circuits shall be provided with an empty PVC pipe, size 19mm diameter that should extend at least 300mm above the ceiling line. The grounding wires shall be identified and all wires shall be color coded for easy identification.

The panel board shall provide with circuit directory.

## 16. PLUMBING

All plumbing works in this project shall be done in accordance with the approved plans under the direct supervision of a duly licensed **Sanitary Engineer or Master Plumber**. The Plumbing installation shall conform to the provision of the latest edition of the National Plumbing Code of the Philippines and the rules and regulations enforced in the locality.

All sanitary pipelines, storm drain, vent pipes down spout shall be Polyvinyl Chloride (PVC) Series 1000.

For the in-house water supply piping installations, Water PVC pipes and brass fittings shall be used. Where a sanitary sewer system or sewage disposal is not operation in the locality, a standard septic vault shall be constructed as shown in the drawing.

Pipe diameters are in millimeters, unless otherwise indicated.

Pipe diameter shown on plan is its nominal size or inside diameter.

Pipe alignment may be change from what is shown in the plans to suit actual field conditions. The contactor shall prepare the necessary modification drawing for review or approval of the BARMM-MRP PMO engineers prior to construction.

Pipe material to be used is as shown on plans or as approved by the BARMM-MRP PMO engineers.

The minimum cover for all pipes, 250mm diameter and under shall be 0.76m and 0.9m for 300mm diameter and larger.

The minimum sand bedding to be laid prior to placement of pipes shall be 100mm thick.

The minimum design pressure shall be 0.6895MPa (1000Psi) unless otherwise specified.

All installed pipes and pipe connection shall be subjected to leakage testing.

## 17. PAINTING

Before any painting is done, all surfaces to be painted shall be cleaned, smoothed and freed from dust, dirt, grease, mortar, rust and other foreign substances and all parts where paint remover has been used shall be washed off with paint thinner or lacquer thinner. All paints shall be spread evenly and carefully using paintbrush, roller, or spray.

No painting shall be done on outside work in extremely cold, frosty, foggy or damp weather. Painting to be done in cold weather should be performed when the temperature is above 50 deg. F.

## 18. Submersible Pump

- Type: Deep well pump/ Submersible pump
- Voltage: 220-240V
- Frequency: 60Hz
- Phase: single phase
- Input power: 2200W
- Max head: 180M
- **Max flow: 6.0M<sup>3</sup>/H**
- Pipe diameter: 1 1/4"
- Well pump body: 4"
- Impeller: 23 stage
- Copper wire motor
- Pump body: Stainless steel



# Annex "C"

## Section VIII. Bill of Quantities

Contract Name: **CONSTRUCTION OF HYBRID SOLAR POWERED LEVEL II WATER SYSTEM AT NORSALAM VILLAGE**

Location of the Contract: **BRGY. PATANI MARAWI CITY, LANA O DEL SUR**

ITEM NO.	DESCRIPTION	UNIT	QUANTIT Y	UNIT PRICE (Pesos)	AMOUNT (Pesos)
1	2	3	4	5	6
<b>PART A. FACILITIES FOR THE ENGINEER</b>					
A.1.1(8)	Provision of Field Office for the Engineer (Rental Basis)	month	3.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____
<b>PART B. OTHER GENERAL REQUIREMENTS</b>					
B.5	Project Billboard/ Sign Board	ea.	2.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____
B.7	Occupational Safety and Health	mo.	3.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____ _____

B.9	Mobilization/Demobilization	l.s	1.00	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____
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**PART C. EARTHWORKS**

803(1)a	Structure Excavation (Common Soil)	m3	117.01	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____
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804(1)a	Embankment from Structure Excavation	m3	105.26	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____
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804(4)	Gravel Bedding	m3	4.32	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ _____ In Figures: _____
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**PART D. PLAIN AND REINFORCEMENT CONCRETE WORKS**

900	Structural Concrete (Ready Mix, Class A, 28 days)	m3	35.27	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
902(1)	Reinforcing Steel of Reinforced Concrete Structures, Grade 40	kg.	5710.28	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
903(2)	Formworks and Falseworks	m2	74.18	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
<b>PART E. FINISHING WORKS</b>					
1046	100mm CHB, Load Bearing (including Reinforcing Steel)	m2	47.71	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____

1027(1)	Cement Plaster Finish	m2	130.53	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
1012(1)	Tempered Glass Window (8mm/10mm)	m2	0.72	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
1051(6)	Railings	l.s.	1	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
1032(1)a	Painting Works (Masonry Painting)	m2	174.80	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____

1032(1)c	Painting Works (Metal Painting)	m2	26.25	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____
1014(1)b 2	Prepainted Metal Sheets (Rib Type, Long Span, 5mm thk)	m2	128.74	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____
1047(2)b	Structural Steel, Trusses	kg	3281.94	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____
1047(2)c	Structural Steel Purlins	kg	672.31	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: _____ Pesos: _____ _____ _____ _____ _____ In Figures: _____

SPL - 4	Steel Door (supply and install)	l.s	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
SPL-3	SIGNAGE AND LOGO	l.s	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
<b>PART F - PLUMBING/SANITARY WORKS</b>					
1001(8)	Sewer Line Works	l.s.	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
1002(6)	Cold Waterline Lines	l.s.	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____

1002(5)	Plumbing Fixtures	l.s.	1.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____
1202(12)	Fire Extinguisher	set	2.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____
<b>PART G - ELECTRICAL WORKS</b>					
1100(30)	Conduit, Boxes, and Fittings	l.s.	1.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____
1101(42)	Wires and Wiring Devices	l.s.	1.00	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____	In Words: Pesos: _____ _____ _____ _____ _____ In Figures: _____

1102	Power Load Center, Switchgear, and Panel Boards and other overcurrent	l.s.	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
1103(1)	Lighting Fixtures	l.s.	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
<b>PART H - SPL - PUMP SYSTEM</b>					
SPL-1	PUMP SYSTEM AND ACCESSORIES	l.s	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____
<b>PART I - SOLAR ENERGY POWER SYSTEM</b>					
SPL - 2	Solar Energy System - Hybrid (Supply & Install)	l.s	1.00	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____	In Pesos: _____ _____ _____ _____ _____ _____ In Figures: _____



AMOUNT IN WORDS: \_\_\_\_\_

AMOUNT IN FIGURE: \_\_\_\_\_

Submitted By

Date: \_\_\_\_\_

\_\_\_\_\_  
Name & Signature of Bidder's Representative

\_\_\_\_\_  
Position

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Address